THE ASTROPHYSICAL JOURNAL CONTENTS OF VOLUME 305, PART 1

1986 JUNE 1, Number 1

	Page	Fiche
AN INDEPENDENT TEST OF BIASED GALAXY FORMATION WITH COLD PARTICLES: THE THREE-POINT FUNCTION	1	67-A7
THE DETECTION OF DISTANT COOLING FLOWS AND THE FORMATION OF DARK MATTER A. C. Fabian, K. A. Arnaud, P. E. J. Nulsen, and R. F. Mushotzky	9	67-B1
MODELS OF AXISYMMETRIC GALAXIES	14	67-B6
ACCRETION DISKS AND PERIODIC OUTBURSTS OF ACTIVE GALACTIC NUCLEID. N. C. Lin and G. A. Shields	28	67-C6
RADIATION PRESSURE AND EMISSION CLOUDS AROUND ACTIVE GALACTIC NUCLEI Moshe Elitzur and Gary J. Ferland	35	67-C13
ON THE ORIGIN OF THE INFRARED AND X-RAY CONTINUA OF ACTIVE GALACTIC NUCLEI Andrzej A. Zdziarski	45	67-D9
X-RAY OBSERVATIONS OF THE BRIGHT QUASAR SURVEY H. Tananbaum, Y. Avni, Richard F. Green, Maarten Schmidt, and G. Zamorani	57	67-E7
COUNTS, EVOLUTION, AND BACKGROUND CONTRIBUTION OF X-RAY QUASARS AND OTHER EXTRAGALACTIC X-RAY SOURCES	68	67-F4
X-RAY PROPERTIES OF OPTICALLY SELECTED QSOs	83	67-G5
MAGNETOHYDRODYNAMIC SOLITONS AND RADIO KNOTS IN JETS	100	68-A8
A MODEL FOR THE SURFACE BRIGHTNESS OF A TURBULENT LOW MACH NUMBER JET. III. ADIABATIC JETS OF ARBITRARY DENSITY RATIO: APPLICATION TO NGC 315	109	68-B3
A PULSED JET AS THE SOURCE OF MOMENTUM IN BIPOLAR MOLECULAR OUTFLOWS SU. Choe and R. N. Henriksen	131	68-D5
DYNAMICS OF THE ELLIPTICAL GALAXY NGC 7097 MEASURED FROM GAS AND STARS Nelson Caldwell, Robert P. Kirshner, and Douglas O. Richstone	136	68-D10
ULTRAVIOLET SPECTROPHOTOMETRY OF THREE LINERS Robert W. Goodrich and William C. Keel	148	68-E7
MOLECULAR GAS IN THE TYPE 1 SEYFERT GALAXY NGC 7469: IMPLICATIONS FOR NUCLEAR ACTIVITY T. M. Heckman, S. Beckwith, L. Blitz, M. Skrutskie, and A. S. Wilson	157	68-F2
FAR-ULTRAVIOLET AND OPTICAL SPECTROPHOTOMETRY OF X-RAY SELECTED SEYFERT GALAXIES John T. Clarke, Stuart Bowyer, and Michael Grewing	167	68-F12
LINE VARIATIONS IN QUASARS AND SEYFERT GALAXIES	175	68-G7
STRUCTURE AND STABILITY OF QUASAR CLOUDS	187	69-A5
THE STRUCTURE OF THE CYGNUS A RADIO GALAXY	204	69-B8
THE AGE OF THE SMALL MAGELLANIC CLOUD GLOBULAR CLUSTER NGC 411 G. S. Da Costa and J. R. Mould	214	69-C6
ON THE BEHAVIOR OF DOUBLE DEGENERATE BINARIES ASSOCIATED WITH TYPE I SUPERNOVAE A. G. W. Cameron and Icko Iben, Jr.	228	69-D14
MAGNETIC FIELD DECAY AND THE ORIGIN OF NEUTRON STAR BINARIES Ronald E. Taam and E. P. J. van den Heuvel	235	69-E7
THE MASS AND RADIUS OF A NEUTRON STAR IN X-RAY BURSTER MXB 1636-536 Masayuki Y. Fujimoto and Ronald E. Taam	246	69-F4
POSTTHERMONUCLEAR RUNAWAY ANGULAR MOMENTUM LOSS IN CATACLYSMIC BINARIES Jim MacDonald	251	69-F9

iv CONTENTS

	D	277 . E
MASS TRANSFER IN CATACLYSMIC VARIABLES: CLUES FROM THE DWARF NOVA PERIOD DISTRIBUTION A. W. Shafter, J. C. Wheeler, and J. K. Cannizzo	Page 261	Fiche 69-G5
ON THE STREAM-DISK INTERACTION IN ACCRETING COMPACT OBJECTS Mario Livio, Noam Soker, and Ruth Dgani	267	69-G11
DYNAMIC FISSION INSTABILITIES IN RAPIDLY ROTATING n = 3/2 POLYTROPES: A COMPARISON OF RESULTS FROM FINITE-DIFFERENCE AND SMOOTHED PARTICLE HYDRODYNAMICS CODES Richard H. Durisen, Robert A. Gingold, Joel E. Tohline, and Alan P. Boss	281	70-B2
STAR FORMATION IN COLLIDING GAS FLOWS James H. Hunter, Jr., Maxwell T. Sandford II, Rodney W. Whitaker, and Richard I. Klein	309	70-D4
A PHENOMENOLOGICAL TRIPLE STAR SCENARIO FOR SS 433 A. C. Fabian, P. P. Eggleton, P. Hut, and J. E. Pringle	333	70-F11
IMAGES OF STAR-FORMING REGIONS. I. OPTICAL AND RADIO MORPHOLOGY OF THE BIPOLAR OUTFLOW SOURCE GL 490	336	70-F14
THE STRUCTURE OF THE W49A MOLECULAR CLOUD COMPLEX: BURST OF STAR FORMATION IN THE $10^5~M_\odot$ CORE	353	71-A13
MILLISECOND RADIO SPIKES FROM THE DWARF M FLARE STAR AD LEONIS Kenneth R. Lang and Robert F. Willson	363	71- B 9
X-RAY SPECTROSCOPY OF FIVE BL LACERTAE OBJECTS	369	71-C1
ULTRAVIOLET-PUMPED INFRARED FLUORESCENT MOLECULAR HYDROGEN EMISSION IN REFLECTION NEBULAE	399	71-E4
THE EXCITATION, ABUNDANCE, AND DISTRIBUTION OF HNCO IN SAGITTARIUS B2 E. Churchwell, D. Wood, P. C. Myers, and Roy V. Myers	405	71-E10
MODELING OF CORONAL X-RAY EMISSION FROM ACTIVE COOL STARS. I. HYADES CLUSTER Robert A. Stern, Spiro K. Antiochos, and F. R. Harnden, Jr.	417	71-F8
NEW RESULTS IN THE OPTICS OF GRAINS WITH RESONANT IMPURITIES Paul R. Shapiro and Katherine A. Holcomb	433	71-G11
SHAPES AND CORRELATIONS AS OBSERVATIONAL DISCRIMINANTS FOR THE ORIGIN OF DIFFUSE BANDS G. Dhlewicki, G. P. van der Zwet, L. J. van Ijzendoorn, and J. M. Greenberg	455	72-B5
A CLOUD COLLISION MODEL FOR WATER MASER EXCITATION	467	72-C4
THE OPTICAL AND NEAR-INFRARED POLARIZATION PROPERTIES OF THE OVV QUASAR 3C 345 Paul S. Smith, Thomas J. Balonek, Paul A. Heckert, and Richard Elston	484	72-D7
ABSORPTION SPECTRUM OF THE $z=3.78$ QSO 2000-330. I. THE LYMAN-ALPHA FOREST REGION AT 1.5 Å RESOLUTION		
R. W. Hunstead, H. S. Murdoch, B. A. Peterson, J. C. Blades, D. L. Jauncey, AE. Wright, M. Pettini, and A. Savage	496	72-E8
THE MICROWAVE AND FAR-INFRARED SPECTRA OF THE ¹⁸ OH RADICAL E. R. Comben, J. M. Brown, T. C. Steimle, K. R. Leopold, and K. M. Evenson	513	72-G9
CALCULATED FORBIDDEN ROTATIONAL SPECTRA OF H ₃ ⁺	518	73-A1
EINSTEIN OBSERVATIONS OF THE SOFT X-RAY BACKGROUND CLOSE TO THE GALACTIC PLANE Steven M. Kahn and Jean-Pierre Caillault	526	73-A10
THE PROJECTED DARK CLOUD DISTRIBUTION OF THE MILKY WAY	534	73-B4
PHYSICAL CONDITIONS IN THE COOL PARTS OF PROMINENCES AND SPICULES: THE EFFECTS OF MODEL ATOM LEVEL TRUNCATION ON THE DERIVED PLASMA PARAMETERS	546	73-C2
FAST-SHOCK FORMATION IN LINE-TIED MAGNETIC RECONNECTION MODELS OF SOLAR FLARES T. G. Forbes	553	73-C9
A NUMERICAL SIMULATION OF THE FORMATION OF THE TERRESTRIAL PLANETS Myron Lecar and Sverre J. Aarseth	564	73-D6
ERRATA	500	53.70
THE A2197 AND A2199 GALAXY CLUSTERS	580	73-E8
Two-Point Correlation Function of QSO Metal Absorption Systems from an Inhomogeneous Catalog of Observations	581	73-E9
INSTRUCTIONS TO AUTHORS	i	73-F13

1986 JUNE 15, Number 2

THE DISTANCE TO M31 FROM INFRARED PHOTOMETRY OF ITS CEPHEIDS	Page	Fiche
Douglas L. Welch, Christopher W. McAlary, Robert A. McLaren, and Barry F. Madore	583	75-C1
THE STELLAR POPULATION IN THE HALOS OF M31 AND M33Jeremy Mould and Jerome Kristian	591	75-C9
THE MASS AND HALO DISPERSION PROFILE OF M32	600	75-D8
ANGULAR MOMENTUM-LIMITED DEGENERATE AND SEMIDEGENERATE NEUTRINO HALOS Talbot A. Chubb	609	75-E3
RELATIVISTIC KEPLER'S THIRD LAW Bruce M. Barker, Gene G. Byrd, and R. F. O'Connell	623	75-F3
CARBON AND M STARS IN NEARBY GALAXIES: A PRELIMINARY SURVEY USING A PHOTOMETRIC TECHNIQUE	634	75-G1
STELLAR VELOCITY DISPERSIONS FOR FOUR LOW-CONCENTRATION GLOBULAR CLUSTERS Ruth C. Peterson and David W. Latham	645	76-A1
THE DYNAMICAL EVOLUTION OF CLUSTERS OF GALAXIES Alfonso Cavaliere, Paolo Santangelo, Giuseppe Tarquini, and Nicola Vittorio	651	76-A7
IS MAGNETIC ENERGY THE SOURCE OF SYNCHROTRON RADIATION IN JETS?Leaf Turner	668	76-B11
METAL-ENHANCED GALACTIC WINDS. I	669	76-B12
ON THE CORRELATION BETWEEN X-RAY FLUX AND HYDROGEN LINE INTENSITIES IN QUASARS AND ACTIVE GALACTIC NUCLEI	679	76-C8
HIGH DYNAMIC RANGE VLBI OBSERVATIONS OF NGC 6251 Dayton L. Jones, S. C. Unwin, A. C. S. Readhead, W. L. W. Sargent, G. A. Seielstad, R. S. Simon, R. C. Walker, J. M. Benson, R. A. Perley, A. H. Bridle, I. I. K. Pauliny-Toth, J. Romney, A. Witzel, P. N. Wilkinson, L. B. Bååth, R. S. Booth, D. N. Fort, J. A. Galt, R. L. Mutel, and R. P. Linfield	684	76-D1
THE C, N, AND O ABUNDANCES OF GIANT STARS IN ω CENTAURI	698	76-E1
FORMATION OF OB CLUSTERS: RADIATION-DRIVEN IMPLOSION? Paul T. P. Ho, Richard I. Klein, and Aubrey D. Haschick	714	76-F3
THE KINETIC TEMPERATURE GRADIENT AND THE STRUCTURE OF A THIN MOLECULAR DISK IN CEPHEUS A	721	76-F10
ON THE DISCORDANT MEASUREMENTS OF THE RADIAL VELOCITY CURVE OF THE LATE-TYPE STAR IN THE DWARF NOVA SS CYGNI	732	77-A1
THE ECLIPSES OF CATACLYSMIC VARIABLES. I. HT CASSIOPEIAE EH. Zhang, Edward L. Robinson, and R. Edward Nather	740	77-A9
ACCRETION ONTO NEUTRON STARS WITH THE PRESENCE OF A DOUBLE LAYER A. C. Williams, M. C. Weisskopf, R. F. Elsner, W. Darbro, and P. G. Sutherland	759	77-C1
OSCILLATION SPECTRA OF NEUTRON STARS WITH STRONG MAGNETIC FIELDS B. W. Carroll, E. G. Zweibel, C. J. Hansen, P. N. McDermott, M. P. Savedoff, J. H. Thomas, and H. M. Van Horn	767	77-C9
HIGH-RESOLUTION $H\alpha$ OBSERVATIONS OF M DWARF STARS: IMPLICATIONS FOR STELLAR DYNAMO MODELS AND STELLAR KINEMATIC PROPERTIES AT FAINT MAGNITUDES Mark S. Giampapa and James Liebert	784	77-DI
KINEMATICAL AND HYDRODYNAMICAL STUDY OF THE HH 32 COMPLEXJ. Solf, KH. Böhm, and A. C. Raga	795	77-E10
SS 433: A 6 YEAR PHOTOMETRIC RECORD J. C. Kemp, G. D. Henson, D. J. Kraus, L. C. Carroll, I. S. Beardsley, K. Takagishi, J. Jugaku, M. Matsuoka, E. M. Leibowitz, T. Mazeh, and H. Mendelson	805	77-F8
A 6 SECOND PERIODIC X-RAY SOURCE IN CARINA	814	77-G2
A PHYSICAL MODEL FOR THE 2175 Å INTERSTELLAR EXTINCTION FEATURE	817	77-G6
MOLECULES IN GALAXIES. I. CO OBSERVATIONS IN A SPIRAL ARM OF M31Barbara S. Ryden and Antony A. Stark	823	78-A1
FORMALDEHYDE ABSORPTION AND MASER EMISSION IN GALAXIES	04.5	70-A1
FORMALDEHYDE ABSORPTION AND MASER EMISSION IN GALAXIES Willem A. Baan. Rolf Güsten. and Aubrev D. Haschick	830	78-A8

CONTENTS

	Page	Fiche
RADIATIVE TRANSFER IN CIRCUMSTELLAR 1612 MHz OH MASERS	837	78-B2
REDISTRIBUTION OF RADIATION IN THE PRESENCE OF VELOCITY-CHANGING COLLISIONS		
1. Hubený and J. Cooper	852	78-C3
THE CHEMICAL COMPOSITION OF THE COOL WHITE DWARF LP 701-29Stelios Kapranidis and James Liebert	863	78-C14
ULTRAVIOLET AND VISUAL WAVELENGTH SPECTROSCOPY OF GAS AROUND ETA CARINAE Kris Davidson, Reginald J. Dufour, Nolan R. Walborn, and Theodore R. Gull	867	78-D3
EXPERIMENTAL EVIDENCE FOR THE EFFECT OF RESONANCE STRUCTURES ON ELECTRON EXCITATION RATES FOR Si III	880	78-E3
MAGNETIC STRUCTURE OF A FLUX ROPE	884	78-E7
THE LARGEST MOLECULAR CLOUD COMPLEXES IN THE FIRST GALACTIC QUADRANT T. M. Dame, B. G. Elmegreen, R. S. Cohen, and P. Thaddeus	892	78-F1
PARTICLE ACCELERATION IN SOLAR FLARES	909	79-A1
SOLAR GRADUAL HARD X-RAY BURSTS AND ASSOCIATED PHENOMENA E. W. Cliver, B. R. Dennis, A. L. Kiplinger, S. R. Kane, D. F. Neidig, N. R. Sheeley, Jr., and M. J. Koomen	920	79-A12
THE SOLAR FLARE EXTREME ULTRAVIOLET TO HARD X-RAY RATIO	936	79-C1
HIGH-RESOLUTION TELESCOPE AND SPECTROGRAPH IMAGES OF THE SOLAR CHROMOSPHERE AND TRANSITION ZONE	947	79-C13
ERRATA		
SEARCHES FOR NARROW-ANGLE ANISOTROPIES IN THE PRIMARY ENERGY RANGE 0.1–10 TeV O. C. Allkofer, W. D. Dau, H. Jokisch, G. Klemke, R. C. Uhr, G. Bella, and Y. Oren	954	79-D10
FORCE-FREE EQUILIBRIA OF MAGNETIZED JETS	954	79-D10
Magnetohydrodynamic Stability of an Axisymmetric, Line-tied, Diamagnetic Plasmoid Embedded in a Uniform Magnetic Field	954	79-D10
THE OPEN CLUSTER NGC 2158	954	79-D10
ABSTRACTS OF ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES, 1986 JULY ISSUE		
Acceleration of Protons and Electrons in the Electromagnetic Field of a Rotating Orthogonal Magnetic Dipole H. Laue and K. L. Thielheim	955	79-D11
Level Populations and Line Intensity Ratios for Transitions between the $1s^22s^22p^2$ and $1s^22s2p^3$ Configurations of Carbon-like ions	956	79-D12
THE ULTRAVIOLET SPECTRUM OF PROCYON, I. THE ATLAS FROM 2030 TO 2371 Å R. Faraggiana, F. Castelli, C. Morossi, Y. Kondo, and K. A. van der Hucht	956	79-D12
THEORETICAL wby Indices	957	79-D13
A VERSATILE METHOD FOR OBTAINING STRUCTURES OF RAPIDLY ROTATING STARS	957	79-D13
CHROMOSPHERIC ACTIVITY, KINEMATICS, AND METALLICITIES OF NEARBY M DWARFSJohn R. Stauffer and Lee W. Hartmann	957	79-D13
THE KPD SURVEY FOR GALACTIC PLANE ULTRAVIOLET-EXCESS OBJECTS: SPACE DENSITIES OF WHITE DWARFS AND SUBDWARFS Ronald A. Downes	958	79-D14
NONLINEAR CONVECTION OF A COMPRESSIBLE FLUID IN A ROTATING SPHERICAL SHELL	958	79-D14
INDEX TO VOLUME 305, PARTS 1 AND 2	i	75-B1

THE ASTROPHYSICAL JOURNAL LETTERS TO THE EDITOR

CONTENTS OF VOLUME 305, PART 2

1986 June 1, Number 1

	Page	Fiche
THE DECAYING PARTICLES SCENARIO AND THE VIRGOCENTRIC INFALL	L1	74-A4
N-POINT CORRELATIONS FOR BIASED GALAXY FORMATION Lars Gerhard Jensen and Alexander S. Szalay	L5	74-A8
IS THE DISTRIBUTION OF MASS WITHIN SPIRAL GALAXIES A FUNCTION OF GALAXY ENVIRONMENT? David Burstein, Vera C. Rubin, W. Kent Ford, Jr., and Bradley C. Whitmore	L11	74-A13
ON THE DEPENDENCE OF FAR-INFRARED AND RADIO CONTINUUM LUMINOSITIES ON HUBBLE TYPE IN SPIRAL GALAXIES	L15	74-B3
CONFRONTING X-RAY OBSERVATIONS OF YOUNG SUPERNOVA REMNANTS WITH NEUTRON STAR COOLING MODELS	L19	74-B7
DETECTION OF SCATTERING IN THE 2175 Å INTERSTELLAR BAND Adolf N. Witt, Ralph C. Bohlin, and Theodore P. Stecher	L23	74-B11
CO IN THE HELIX NEBULA	L29	74-C2
ERRATUM THE GAMMA-RAY SPECTRUM OF THE GALACTIC CENTER REGION Guenter R. Riegler, James C. Ling, William A. Mahoney, Wm. A. Wheaton, and Allan S. Jacobson	L33	74-C6
1986 June 15, Number 2		
ON THE RATIO OF [N II]/H α IN THE NUCLEUS OF M33 AND IN THE NUCLEI OF OTHER GALAXIES Vera C. Rubin and W. Kent Ford, Jr. KINEMATIC EVIDENCE OF SATELLITE GALAXY POPULATIONS IN THE POTENTIAL WELLS	L35	80-B1
OF FIRST-RANKED CLUSTER GALAXIES Lennox L. Cowie and Esther M. Hu	L39	80-B7
MOLECULAR GAS IN HIGH-LUMINOSITY IRAS GALAXIES D. B. Sanders, N. Z. Scoville, J. S. Young, B. T. Soifer, F. P. Schloerb, W. L. Rice, and G. E. Danielson	L45	80-B12
OPTICAL REPROCESSING OF GAMMA-RAY BURSTS F. Melia, S. Rappaport, and P. C. Joss	L51	80-C4
THREE-DIMENSIONAL STRUCTURE AND DYNAMICS OF A SUPERSONIC JET		
Clifford N. Arnold and W. David Arnett	L57	80-C9
A PRELIMINARY SURVEY OF COLLAPSED CORES IN GLOBULAR CLUSTERS S. Djorgovski and Ivan R. King	L61	80-C13
X-RAY SPECTRA OF BURSTING NEUTRON STARS AND THE COLOR TEMPERATURE VERSUS LUMINOSITY DIAGRAM	L67	80-D4
RADIO OBSERVATIONS OF THE 1985 OUTBURST OF RS OPHIUCHI R. M. Hjellming, J. H. van Gorkom, A. R. Taylor, E. R. Seaquist, S. Padin, R. J. Davis, and M. F. Bode	L71	80-D9
NEW OBSERVATIONS OF ALPHA ORIONIS WITH A ROTATION SHEARING INTERFEROMETER F. Roddier, C. Roddier, R. Petrov, F. Martin, G. Ricort, and C. Aime	L77	80-D13
THE EFFECT OF THE NEW 12 C(α , γ) 16 O RATE ON THE CHEMICAL EVOLUTION OF THE SOLAR NEIGHBORHOOD	L81	80-E3
DETECTION OF ATOMIC HYDROGEN IN THE YOUNG PLANETARY NEBULA IC 4997 Daniel R. Altschuler, Stephen E. Schneider, Carlo Giovanardi, and Peter R. Silverglate	L85	80-E7
DIRECT MEASUREMENT OF THE FINE-STRUCTURE INTERVAL AND g _J FACTORS OF SINGLY IONIZED ATOMIC CARBON BY LASER MAGNETIC RESONANCE Andrew L. Cooksy, Geoffrey A. Blake, and Richard J. Saykally	L89	80-E11